



Insurance Industry Simulation Games between Knowledge and Action

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Simulation games are a multifunctional and efficient method for personnel and organizational development for the insurance industry. By constructing a structured framework for a typical implemented training, we illustrate the benefits of using simulation games.

The recommendations and comments derive from 15 years of experience of the author and his team in using gaming simulation methods in a broad range of situations and seminars with a variety of participants and objectives.

Our main focus lies on experiences with „business simulations“ in the context of insurance industry topics.

In a business simulation the participants inherit the management perspective of a company and run this company in competition with others in a simulated market for several business years. In addition to the used methodology and dramaturgy these business years are shortened to span a few hours or days. Communication and learning takes place in the team (=company) and between the teams. A computer-based simulation models market and business processes and calculate the results of management decisions.

The objectives of the gaming simulation workshops, which were facilitated by the author, differ over the years as much as the target groups and participants. These objectives vary. They may include an emphasis on theoretical knowledge transfer, the formulation of a systemic view of entrepreneurship or a primary concern with leadership and team-building. In addition to these different aspects the settings of the seminars are also different. That is the reason why every training session has its individual main topic, didactic, dramaturgy and underlying simulation model.

The article will show the underlying procedures for designing simulation games and describes the used didactical principals. Furthermore three examples of typical training sessions using computer-based insurance market simulations will be presented.

The three “M”s of Gaming Simulation

Simulation games, more than other teaching- or learning-situations, are a willful design process of the three “M”s:

- ... the **M**en involved in the learning process,
- ... the used **M**ethods and,
- ... as special feature of Gaming Simulation, the **M**odel of the simulation.

Men

Simulation Games, in particular business simulations, are „peoples business“ (Jungmann & Klotzbücher, 2002). The people involved stand in the foreground, when simulation games are designed: participants, facilitators, trainers and speakers.



Figure 1+2: Impressions of a simulation game workshop at the University of Munich

These are people with different experiences, representing both the theoretical knowledge and practical knowledge that emphasizes the interaction between colleagues and superiors. Most of the workshop participants have several years of work experience and are designated specialists in their subject. This is the reason, why a large part of the knowledge transfer does not take place between facilitator and participants but mainly among participants. The simulation game serves as a catalyst and accelerator for the transfer of knowledge.

An appropriate dramaturgy of the simulation game not only offers the participants the chance to bring in their knowledge. Rather, their experience are required to solve the given task. Every participant is of value for coping with the challenges and the learning situation. For this reason everyone experiences a high degree of appreciation and attention, which increases the motivation and willingness to participate in the "game" and bring in one's own experiences.

Proactive-learning situations, which can be enriched by their participants, are more useful than normal ex-cathedra teaching by a specialist particularly for advanced and dedicated participants. Depending on the objectives of a workshop the main task of the facilitator is to use the strengths of the participants to develop a fruitful workshop. Based on the different experiences of the participants with games – mainly in their private surrounding – there are lots of different claims, fears and expectations concerning the gaming simulation method:

While participants usually are familiar with conventional teaching and learning methods, participants often have no previous knowledge of the game methodology. Some of them worry that by "only playing" they will not be able to learn enough, and are therefore sceptical about the time they will have to invest in playing. The vast majority of participants are looking forward to thrilling competition, fruitful discussions and valuable knowledge.

The success of a gaming simulation workshop is highly dependent on the design of the beginning of the workshop. In the first part of the seminar facilitators must carefully instruct participants, so that they will have a clear idea as to what roles they will be expected to fulfil during the game. If they identify themselves with their role on a high level, they will intensively approach their task and will be more engaged in reaching the goal of the game. While running the workshop it is important to maintain high energy and to enthusiastically support the roles. Helpful suggestions for this are examples from film- and theatre-dramaturgy. At the end of the workshop it is the task of the facilitator to guide the participants out of their role back into reality and to release them with their new experiences and gained knowledge back to familiar environment.

A participant once summarized the situation in a very good way: „I felt like being in a cinema. But I am not sure, if I was the viewer or the chief character.“

Thus, the most important point for the success of a simulation game is, that the combination of participants, facilitators and speakers correspond to the respective goal of the workshop. A special capability lies also in the formation of the teams. In general, the more heterogeneous the three to five member teams are, the more fruitful are the intensive discussions.

The success of these teams depends greatly on the varied perspectives and backgrounds of the members: Because the team-members contribute different knowledge levels and different perspectives they each become more familiar with basic business structures (e.g.

the cash-flow in companies). This also leads to successful debates dealing with the relations within and the structure of a company.

The facilitators form the learning-process, activate the participants and accompany them through their own knowledge transfer. It is indispensable that the facilitator is always believable and authentic. Besides possessing a high sensitivity towards group-dynamic processes, he should also have a well-founded, expert knowledge in the given field. Facilitator teams have the advantage, that they can complement one another regarding their professional- and social-competencies. To effectively facilitate a group of 20 participants, a team of two or three facilitators is recommended. A benefit from this is that one facilitator can concentrate on the group-processes, while the other trainer/s deals with the group's professional support. When problems arise, a facilitator-team provides the opportunity to adjust the program and to bring in an additional perspective – professional or didactical.

Method

At the foundation of gaming simulation method is the focus on experience and action: The participants solve a problem, by using the provided information, interaction with others and new information that is introduced in the process.

Orientation on experience and action follows the constructivistic view of learning, which sees the learning-process not as a passive-receptive process, but the learner himself actively takes over the steering- and controlling-processes. The individuals' experience- and knowledge-background and interpretation activate the cognitive processes. For this reason learning always takes place in a specified context. This means, that the learning-process is also a social-process in which learning is an interactive event (Reimann-Rothmeier & Mandl, 1996).

In our business simulations this situation is the common management-task for the executive-committee of an insurance company: companies are run by teamwork, information is given in different types (written, spoken, visual, by using metaphors and stories) and affected by the learners or groups. The facilitator has the role of the presenter and is responsible for setting the textual frame and timeframe. In an ideal case a dramaturgy like a thrilling movie is generated, which supports the achievement motivation for cognitive and social processes.

Simulation games include learning-experiences in professional competencies, social competencies and system competence (Schmidt, 1994).

System competence contains the consideration of: social structures and contexts, the handling of the time dimension, the handling of emotional dimensions, the ability for social contacts, the promotion of systems and requirements of self-organization and furthermore the theoretical knowledge of system-theory methods (Kriz, 2000).

Regarding our practical experiences, we found four aspects indispensable in creating a successful simulation game:

- (1) The workshop starts with clear goals for the qualification- and development-event. Needs relating to topic, and learning objectives and (most importantly) the learning-culture should be carefully worded. It is very important that one overcomes the temptation to try to include every possible option, which simulation games have, into the workshop. It is more beneficial, to follow and implement only a few goals intensively, rather than including multitudes of aspects, which lead to conflicts of goals and resources (time, receptivity, complexity). The types of simulation games that are mentioned earlier might be of help in avoiding these problems.
- (2) The sustainable success for the gaming simulation method lies mainly in utilizing the intrinsic motivation of the participants, which is encouraged pushed by active participation in an competitive setting. An environment of attention and openness towards new things is achieved. Furthermore, this can be used to bring in accompanying topics such as presenting current (professional- and leadership-) topics.
- (3) With the help of facilitators, who are deeply involved in the usage of the models and learning-processes of simulation games, an adaptive dramaturgy is possible, which can create, over the course of the seminar, a tension curve and guarantee a sustainable learning-experience.

(4) Every simulation game should be unique event, which is in an ideal case embedded temporally and textually in the participants' surroundings (e.g. development programs in organizations, the curriculum of a study course).

Model

One fundamental difference between gaming simulation and the "traditional style of learning" is the involvement of a simulation model: Reality is reduced to some basic aspects and sets up the framework for the learning environment. It is important to point out, that the model should not be the dominant element of the gaming simulation workshop. Particularly self-learning simulation games, such as WBTs or CBTs often over-emphasize model as the sole learning-situation, thereby giving away the above mentioned potentials of the active learning method.

The vast number of business simulations use computer-based simulation models. For models with a low rate of complexity it is absolutely viable, to use models as simple as a board game. Although one must keep in mind that simple models prevent the facilitators from illustrating professional topics in great depth.

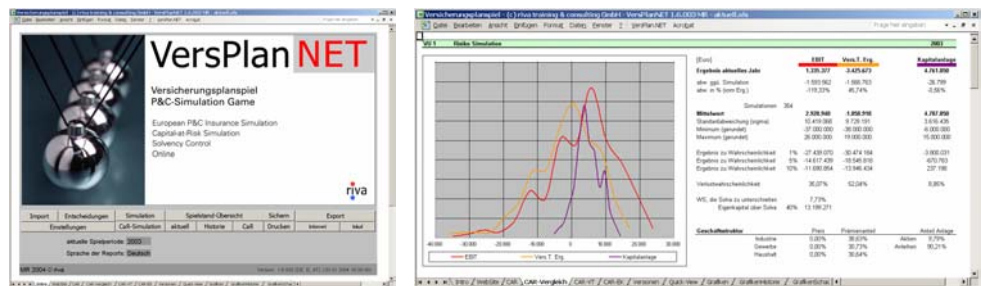


Figure 3+4: riva VersPlan.NET: Advanced gaming simulation model for the insurance industry

The model we used for the example „riva VersPlan.NET“ is a computer-based insurance simulation. It uses the methodology of the „Monte Carlo Simulation“ (Frey & Niessen, 2001) in order to model coincidence, which is a basic feature of the insurance business. The profit, which is achieved by the participants, and the analysis and reports, which support the decision-processes, follow (certainly very much simplified) the rules of the „Dynamic Financial Analysis (DFA)“ (Kaufmann, Gadmer & Klett, 2001).

To support a holistic view of risk management the model has stochastic components for the actuarial risk, the investment risk (ALM = Asset Liability Matching), the operational risk and the market risk. Within the framework of further development it is planned to improve the modelling of the risk especially in the field of ALM-risks, the operational risks and the interdependencies between the different risk-components (Helten, 2004). In this area especially we hope that the fruitful teamwork between riva and research and vocational training will lead to success in the future.

VersPlan.NET is deliberately designed as a tool for trainers and not for participants. This means that the textual alteration with the learning-field and the entrepreneurial challenge stands in the foreground, rather than software engagement.

As we already mentioned, having the right model is a critical factor for the success of a simulation game: The most important requirement is, that the model is respectively realistic and can be explained with realistic interdependencies. If this is not possible, the simulation games drifts away in discussions about the sense and nonsense of the underlying model; the desired engagement with the learning-input takes a back seat (Klotzbücher, 1996). The model must be is robust and lifelike in marginal situations: in an ideal case the model works in a broad range with its own dynamic, and without any trainer intervention. This insures that the practical experience in modelling attracts participants attention. It is also helpful if the experiences and the feedback of the users (trainer and participants) flow systematically and promptly into the model-design and its calibration..

This why a good simulation game is not a computer-game: The participants should not try to "hack" the model. Rather, they should bring in their own experiences, knowledge and

learning-results. These issues should be discussed in the context of the model (or better: in the context of those parts of the model that the participants are aware of). This problem is usually solved with the above mentioned methodology and dramaturgy. A model, which has a high level of complexity and an adequate abstraction-level, supports this also. Simple solutions, like recipes, will not lead to success; only by fully understanding the system, and recognizing its patterns will participants be lead to the finish line. Ideally the computer-model is nearly invisible: The game has its own reality which is embedded in a simulated market. This reality is a projection of the experiences and perceptions of the participants. Every workshop creates its own dynamic and has its own character, depending on the expectations, experiences and personal goals of the participants.

In the following section we will explain, which elements we have used in our gaming simulation practice for individual insurance simulation games.

Elements for an insurance simulation game

The basis of a model for the insurance industry will always be the actuarial practice. VersPlan.NET participants run an insurance company with three lines of business from a property-insurer. Risks insured are included in the model on the level of individual contracts and individual claims. This enables a very high possible level of complexity and of professional depth. The model covers the topics marketing, reinsurance, investments and business operation.

Controlling and accounting is supported by (static) benchmarks, reports, analyses and key figures, which are well-established in practice. The range is highly variable and may be changed during workshop sessions.

The perspective of the workshop participants as decision-makers can be enriched via results of the (dynamic) DFA simulations in reference to capital expenditure, company value, solvency, structure of the operational system and asset-liability management. The use of these advanced instruments depend on the level of complexity incorporated in the simulation model used. The time horizons vary between one and ten years – depending on the situation for decisions the participants are focussed with.

The modelled insurance companies (in our case there are five) compete in a simulated (European) market. Entrepreneurial decisions within a competitive environment result in business outcomes, which are calculated by the simulation. Every company will define a strategic plan with goals, levers and actions, which serve as the basis for the measured success. With this we have broader range of experiences, which explicitly create more learning opportunities in comparison to a parameter and a rank which produces a list of winners and losers.

The topic reinsurance has an exceptional position: (Real) negotiations take place between the participating teams about buying or selling and the rating of coverage, which will become the basic factor for the computer simulation.

The following figure give an overview of the elements of the model:

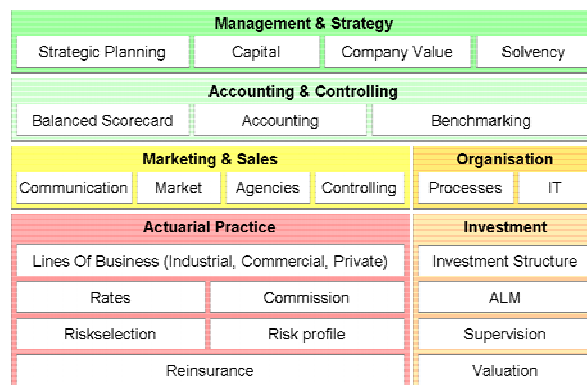


Figure 5: Elements of the riva insurance simulation game using VersPlan.NET

The components of the models should be viewed as a construction kit, which could be individually used in instances where the purpose of complexity, depth and range are concerned.

Trainers should also be able to change the level of complexity during a workshop in order to control the learning process.

Applications for business simulation games

In the following chapter we structure our gaming simulation experiences in a simple way, and design a framework for individual gaming simulations for the insurance industry.

Types of simulation games

In order to set up types of simulation games, with which general recommendations for the design of further games can be derived, we find it useful to use the dimensions "professional competence" and "social competence" as benchmarks for classification.

The dimension „system competence“ will always be an integral and important part of simulation games.

The limits between the presented types are fluent. Even during a workshop (with reference to the needs and potentials of the participants, and based on the qualification and flexibility of the facilitator), it is possible to attach several topics for professional or social competence in addition to the „normal“ input.

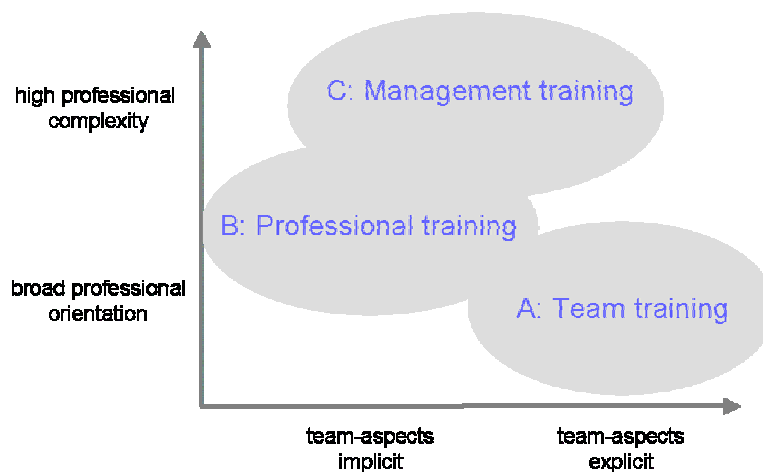


Figure 6: Types of Simulation Games

Based on our experiences we discovered, that customers always want insurance industry gaming simulations to be set up on solid, significant, professional groundwork. To learn something new within one's familiar professional domain and to expand one's own competencies are the things which add zest to these simulation games. We differentiate between simulation games which are focused on a broad theoretical knowledge (1), and those with a deep complexity on the professional level (2).

(1) In the first instance, we deal with all relevant functional areas with a relatively low level of complexity, but nevertheless on a relevant professional level. The challenge for the participants lies here in mastering the coherences and the dynamic of the timescale. Depending on the participants and the agenda there remains space for additional topics

and aspects.

(2) In the second instance the modelling reaches deep professional complexity. This makes it possible to discuss single questions on a high textual level. The requirements of the model's quality are very high. These models can be supplemented by detailed theoretical inputs (e.g. reports) within the gaming simulation workshop and/or additional workshops. Simulation games with a penetrating professional complexity are especially adequate for selected target groups such as executives or students in post-graduate programs. For less experienced target-groups workshops with a high degree of professional complexity run the risk of "spilling" learning-effects.

Due to the group setting and inter-team negotiations, aspects of cooperation are always an implicit part of gaming simulation workshops. Depending on the goal, the workshop could offer an explicit focus on team-aspects, (e.g. in the framework of team-development or monitoring a reorganization-process). In designing an individual simulation game it is important to maintain the balance between "professional competence" and an explicit focus on "social competence". Based on our experiences there is a risk that the participants, who are dominated by their intrinsic motivation to win the competition, want to ignore the focal point of cooperation. In such instances, the facilitator, who is both a moderator and a former beneficiary of the learning-process, is highly challenged. The facilitator's sensibility and professionalism is greatly needed to address team-related issues without losing the focus of the overall simulation game.

Type A: Team-integrated professional training

In a simulation game which serves as a team-integrated professional training, the team-aspects of a group or a company's department are selected explicit central topic in front of the background in insurance related topics.

When considering a gaming simulation workshop for a department/central department within an insurance company as an example, the possibilities and chances of this type of simulation game can be illustrated:

(1) On the level of professional competence the goal is that business management competencies are increased and the understanding for strategic processes and entrepreneurial decisions are further developed and sharpened.

(2) The common issue of overlapping departmental work on challenging insurance-related topics brings forth soft topics like "culture of cooperation", "comprehension of service" or "entrepreneurial behaviour".

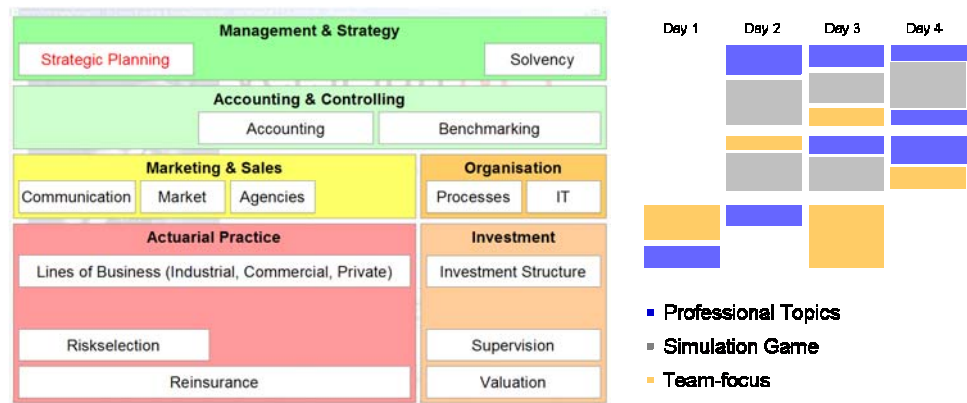
It is important to suppress the problems of sanctions from every-day business life, so that one can learn from mistakes.

(3) Based on the intensive teamwork and the highly communicative atmosphere, the workshop is ideally suited for integrating new employees.

(4) The high level of identification with entrepreneurial topics and the overall heightened participant attention can be effectively used for (Top-down) the communication of current topics in companies, (e.g. in the framework of fireside talks or (panel) discussions with executives).

The model which is used for this type of workshop is broadly invested and moderately complex, but, if needed, it can be supplemented during the workshop with several topics or modules.

Advanced aspects of controlling or management play only an underlying role.



Figures 7+8: Team-integrated professional training: model-configuration and workshop-framework

As a form of a workshop the team-integrated professional training can be used as block-seminar, lasting three to four days. The workshop's focus changes between professional challenges and specifically chosen picking out aspects of cooperation.

At this point it is very important that the workshop-situation is not disturbed, and maintains its tenseness. This allows the participants to focus intensely on their challenge and to pursue their curiosities.

Type B: Professional Training

In a simulation game, which is designed as a professional training, the active learning-process and the use of insurance related topics are in the foreground. Team-aspects and cooperation-related topics are not explicitly focused on. Professional training of this type can for example be found in the framework of company-internal qualification-programs for business management topics (Accounting, Controlling, strategic planning. ...). A simulation game as a professional training can also serve to supplement or fulfil curricular qualifications in universities and post-graduate programs.

Considering the riva insurance simulation game with focus Balanced Scorecard (BSC) as an example, it is obvious how beneficial simulation games can be in professional training:

- (1) The main goal of the workshop is to procure and to merge advanced business management competencies to accounting, controlling and performance measurement systems by operating as an entrepreneur.
- (2) The active role of the participants aids in understanding of implementation-processes, controlling and in communicating strategic decisions with the help of BSC.
- (3) The situation in the simulation game allows participants to reflect and judge the topic BSC in a sanction-free context, and facilitates in applying the experiences towards real situations within their own company.
- (4) Because of the heightened participant attention to the topic BSC, the simulation game can be utilized as platform for (Top-down) communication. In the framework of a presentation or lecture, which is embedded in the simulation, there might be a report about implementing and using the BSC, (e.g. done by an executive of the company).

The simulation model for this gaming simulation workshop contains more insurance business elements for the topics like strategic planning, accounting and controlling than the team-integrated professional training that has been introduced in the beginning.

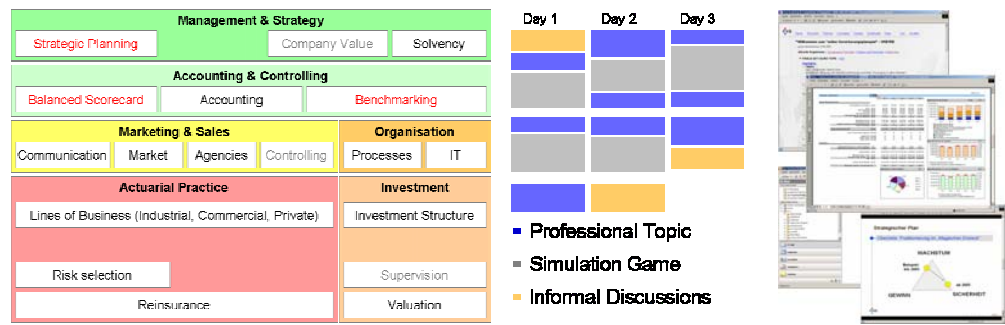


Figure 9+10: Professional training: model content, seminar framework, online content

A professional workshop can be more flexible in terms of time and structure than a team-oriented training.

We have had made good experiences by using a „Blended Learning approach“:

- (1) A two- to three-day block-seminar lays the professional basics, produces motivation for the competitive situation and anchors the relations for communication and exchange of experience.
- (2) An additional phase with five to six online-sessions and a collective closing meeting enhances the learning, and allows room to check the capacity of different business strategies.

Type C: Management Training

In a management training that is designed as simulation game the needs of the executives are the central point. In the field of professional competence these are high-level management skills and best-practice approaches in the industry.

In the area of social competencies these are leadership topics.

If the target group is the mid-level management, it is possible that more operative oriented professional topics from the field of finance or topics like communication of cooperation are focused in the workshop-design.

Using the riva Insurance Management Training (IMT) with the main topic “Value-based Management” as an example of gaming simulation, the method’s potential for management-trainings can be illustrated:

- (1) The focus is on getting used to and mastering the methods “Value-based Management (VBM)” in the context of risk-adjusted corporate management.
- (2) As executives, who participate actively in the simulation, the participants get a direct view of the interrelations of risk-management, value-based management and the upcoming controlling principles of Solvency II.
- (3) The sanction-free context of a simulation game offers the possibility to reflect and to judge the topic VBM, and to apply the experiences to a real situation in one’s own company to a large unbound extent.
- (4) Furthermore the situation in a simulation game can be used as a platform for (Top-down) communication of value-oriented management guidelines and its implementation in the company.

According to the target group this simulation is based on a widely extended model, which includes all model-components. The focus lies on the strategic perspective and the extended static and dynamic analysis and reporting. This workshop-concept affords a good opportunity to deal practically with new concepts of decision-support such as quantitative risk-analysis.

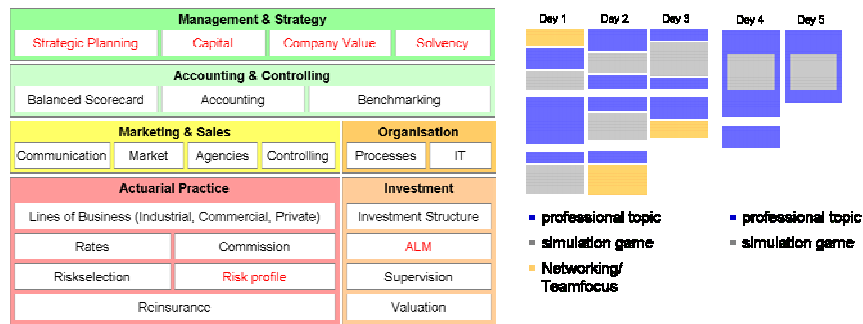


Figure 11+12: Management training: model content and workshop framework

The design of the agenda and the content of a simulation game, which has the management as its target group, has to be tailored to the needs and framework of these executives: It is important to have an efficient lapse of time, but nevertheless there must be room for discussions and changing perspectives. The composition of participants and facilitator/s has to be carefully adjusted as well.

In the given example of an IMT for the first level of executives (below the executive board) of an insurance company, a two-and-a-half day seminar is extended with two days of workshops to enhance the methods of quantitative risk-analysis.

Conclusion

Gaming Simulation is a very effective and successful learning-method, which can be used for a growing number of topics and target-groups. With its theoretical and methodological framework, it has also become a constant in vocational and professional training, in personnel development and in the curricula of academia and advanced training institutes.

A good gaming simulation workshop is always individual and unique. It acquires its whole potential, if it is completely integrated in the development framework of the participants. Based on established and approved models of (insurance-) theory and experienced trainers it is possible to impart this knowledge in profitable way.

“Gaming Simulation – it’s much more than just a game.”

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